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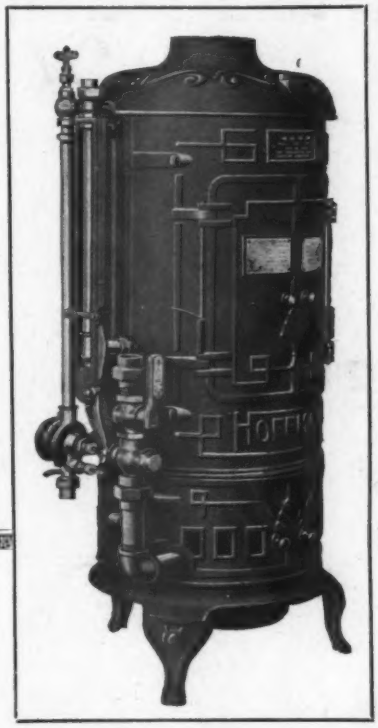

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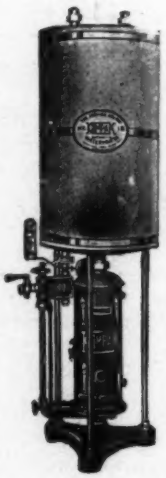

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Business to Be Secured in Honey Bottling and Manufacture of Artificial Honey Not Large, but Generally a Long-Hour Twelve-Months Load

Prospects in a Large Proportion of the Communities that Have Gas Plants—Gas a Favorite Fuel

By GILBERT C. SHADWELL

A gas man does not have to live in the country to sell gas to those in the honey business. Honey is sold in every city, town, and village where there is a gas supply and in a large number of those places honey is either produced, manufactured artificially and bottled or all three.

Those having apiaries on a medium or large scale usually pack their honey in bulk and ship it in cans or barrels. It seems, however, that a lot of handling causes total or partial crystallization to take place, and this effect appears to be hastened by changes in temperature, that is to say alternate warming and cooling if unsterilized, but if sterilized and not handled much it will stay liquid for an appreciable period and present a bright and "sparkling" appearance.

The sterilizing act, therefore, is usually carried out by the bottler. When he receives the tins or barrels of honey they contain for the larger part honey which is pretty nearly all crystalline, and obviously it can neither be gotten out in that form nor can it be bottled. A liquefying tank, therefore, has to be employed and gas is generally the fuel utilized for supplying the heat. These liquefying tanks are of several forms; some are just plain tanks whereas others are the form of ovens. In all cases the cans are placed in them in an upright position, the purpose being to warm the cans up sufficiently to cause the honey to melt. This has to be done slowly, and water jacketing is occasionally resorted to.

Guarding Against Loss

As the honey has a tendency to run a little on the outside of the cans when heating, due to the presence of small holes and other damage, it is usual to place a drip pan under them. This "lost" honey is thus recovered and collected by being run off outside the tank or oven.

After the honey has been sufficiently liquefied it is run into a sterilizing or "curing" tank. These are almost aways water-jacketed.

The purpose of these tanks is not only to cure the honey but to carry out the blending process. It should here be explained that the seasons for honey production are so uncertain at times that a producer or bottler often finds himself unable to supply his trade with any one kind of honey. If, for example, his honey is almost exclusively from clover, with little or no basswood or fall flow, the customers will become accustomed and educated to like that particular flavor and no others; they will reject all other honeys of other flavors on the ground that they are impure. So in order to provide a contingency of this sort honey bottlers use from the start of the bottling operation a honey which can be furnished from year to year. They may, for example, make a blend of white clover, basswood, alfalfa and mountain sage. Such a blend is said to be a fine table honey, and the writer is informed that the very large majority of honey thus put up is of such a blended nature.

After the proper blend has been made, the honey is left standing in the tank until it is thoroughly cured, after which it is run out and bottled. This is sometimes done by attaching a rubber hose to the filling tank, loading the bottles onto a tray and applying the hose to each in turn.

The cheaper grades of honey are usually artificial or made of a blend of veal and artificial honey. Gas is employed as a fuel in both cases.

A gas-fired timed copper cauldron furnace is usually best for making this.

Though this business is not very large, it is generally a twelve months' load, fairly long hour and worth securing.

It is not a field which has been extensively explored, but the time taken in doing so will not be wasted.

Realized That Only Portion of Future Margin Between Cost and Selling Price Can Come from Increased Rates

Henry S. Whipple Outlines the Problems Facing Gas Companies and Suggests Constructive Measures to Remedy Them

The more the problems connected with the manufacture and distribution of gas are studied the more evident becomes the need of research work, declared Henry S. Whipple, in his presidential address before the Illinois Gas Association. Gas companies must increase their incomes, and only a portion of that increase can be obtained through increased prices for gas. The remainder must come from the better utilization of the by-products, economies in the boiler house and retort house, and from the greatly increased sale of gas for all purposes. Chemists are needed to cut down the waste of fuel in the boiler house and retort house, and to increase the efficiency of the gas making and purifying apparatus. Even small plants can well afford to employ a chemist to do such work. I call your attention to a paper by Professor S. W. Parr, entitled "Present and Future of Gas," read before the Western Society of Engineers last year and published in one of the gas journals in which he asks for futher research work in our industry along chemical lines. He said also he believed raw coal should not be used as a fuel for any purpose. To bring about that condition we must have engineers with vision and chemists with analytical minds working together to one common purpose.

Industrial Gas

The use of gas in large quantities at a steady rate during the year should be encouraged. There are such possibilities in nearly every community as fuel gas is in its infancy, and for that reason it is necessary to convince managers and superintendents of factories of its great value in the mechanic arts. To do this the services of men specially educated in the use of gas for industrial purposes are required. The larger gas companies are able to employ such men. Gas companies in small communities, where the use of gas for industrial purposes is limited, could combine and employ an industrial gas engineer who would apportion his time among the companies contributing to his salary. The business is there to get, but after you get it you must hold it by giving good service.

Revising Present Standards

To stimulate the progress of the gas industry to its real goal a concerted effort must be made to revise the present required standard of heating value. To fulfill this standard means inefficient production. The modern tendency is to minimize drudgery. To supplant coal and oil with gas accomplishes this, and economic methods of production reduce the cost and consequently the selling price. Here again we need gas men with vision and analytical minds.

Publicity

One of the greatest obstacles to the progress and development of the gas industry is the lack of understanding on the part of the public toward our industry, and it is clearly our duty to remove that obstacle at the earliest possible moment. One effective remedy for this evil of misunderstanding is plain, persistent publicity, and I commend the work already done by the Illinois Committee on Public Utility Information to enlighten the public regarding the public utilities. The bulletins sent out contain information that cannot be questioned, and if the work is continued it will be of great value to all public utilities. "The Special Information Service" to schools and colleges must result in great benefit to the public and the utilities. Last year F. E. Luther, in his presidential address to this association, said "the subject of educating the public is one that cannot be given too much thought and consideration," and he advocated educating the children of the public schools to read meters and adjust appliances as tending to reduce complaints and misunderstandings. I wish to add my voice to that suggestion. Another remedy for this evil of misunderstanding is the taking part in the civil and social activities of the city by the officials and employees of the utility. I mean by that the serving on committees of the various clubs, societies, Chamber of Commerce, committees doing charity work or educational work. Every employee is a potential unit in the dissemination of publicity to remove misunderstandings. As a rule the service given by gas companies is so good that consumers take it as a matter of course, and have no knowledge of the hard work done to give continuous good service of gas. It is a good idea to tell them about it once in a while. Be an active citizen of your community as well as a good gas man.

Strikes

Possibly this is not the place to speak about the strike of coal miners last November, but it is a matter that vitally concerns many gas companies and the communities they serve. This is a government by majorities, and the radical leaders of an organized minority will not be permitted to prey for any length of time on the unorganized majority. Many organizations with large memberships and great defensive funds are in a position to do great harm to the public without accepting any responsibility for the acts of either their individual members or of their leaders.

There is no such thing in this nation, under the Constitution, as a right without an obligation. Granted that a man has the right to strike—but there is the obligation that his acts shall not injure the interests of the State or nation of which he is a part. The use of gas in the

home, the store, the factory, has grown so large that if it were cut off great loss of money and much inconvenience and suffering would result. It has become a necessity of life. No man—no set of men—should be allowed ever to place in jeopardy the necessities of our nation. Instead of being specially exempted from legislation that is enacted to safeguard the public against the extortion of combinations, all labor organizations should be compelled to incorporate and be brought within the reach of civil process in every jurisdiction. On the other hand, cannot some of the blame for the dissatisfaction of the miners be placed on large users of coal and also the public in general? Do we not owe a duty to the miners to store coal during the summer when usually the miners work part of the time?

The working year of a miner is about 249 days. If he could work 300 days his yearly income would be greatly increased and the non-producing expenses of the operator reduced all without much extra cost to the consumer, and we would have our coal when we need it. The Government says "Store Coal." The operators say "Store Coal." We should do it.

Service

On all sides we hear the word "service." We say we sell service—not gas—and service has come of late years to be an important part of our industry. The Utilities Commission has said on several occasions that it gives greater consideration in rate cases to those companies that give good service than it does to companies whose service is not good. What do we mean when we say "good service"? Is it to see that good gas is supplied to the outlet of the meter at the proper pressure to be charged for at the regular rate or does it mean good gas supplied to the outlet of the burner at the proper pressure and at regular rates?

Why should a gas company clean the burners of a range, stop leaks in gas fixtures or send a man a mile or two at night to pick up from the floor the quarter the customer dropped there instead of placing it in the meter—all free of charge? Why should these services be required of us more than of municipally owned water works that do not stop leaks or repair fixtures? I believe the great obligation of every gas company is to give the best service possible, but how far should we go in giving good service without compensation?

Home Rule

Because the Public Utilities Commission, after hearings and investigations, allowed the utilities to raise their rates that they might not become bankrupt, the cry of "home rule" for the cities has gone out over the State and the constitutional convention has been instructed by the voters to place in the new constitution a clause giving to cities the power to control public utilities in those cities. There was no demand for home rule when our rates were being lowered and more and better service required of us. This cry of "home rule" is a slogan engendered and kept alive purely for personal use by politicians and by sensational newspapers whose sole desire is to increase their circulation. What is "home rule"? It is a trouble breeder; it makes the utilities the football of politicians; it gives to designing mayors the power to haress the public utilities and to aldermen the chance to talk about something of which they know absolutely nothing. To repeal the public utilities act and restore to city council and village boards the right of home rule over rates and service of utility companies is to open wide the door to inefficient confusion and chaos from which every customer of the utilities and the owners of their securities would suffer. No city should be given the right to control in any way the rate and service of any utility within its border. On the other hand, our commission should be allowed money sufficient to enable it to hire more efficient employees, and in that way give quicker and better service to customer and utility. Home rule of public utilities has elected mayors; it has elected aldermen; it has done a number of things of like nature. Why go back to it? Who, having a just cause would be willing to submit it for decision to a biased or uninformed judge?

Readiness to Serve

It is a curious anomaly of business life that public utilities are required to furnish service to some customers at a loss. Why that should be required of us I do not know. Possibly the answer is that in dealing with utilities, other things besides purely business matters are considered. Courts and commissions have held that as the utility, as a whole, is a going concern, it is not of much moment if some customers did not pay their share of the cost of the service received by them. There is no equity in such reasoning. It is just as reasonable to require a well-to-do man to pay part of the meat bill of his poorer neighbor as it is to require him to pay part of that man's gas bill. A minimum bill charge helps a little, but it does not go far enough. We should ask for a "Readiness to Serve" charge so that all consumers shall pay their just share of the cost of supplying them with gas.

Municipal Ownership

So much has been said by many able men regarding municipal ownership that it seems unnecessary for me to say anything on the subject, but as the voters of the State have expressed a desire for municipal ownership, I feel constrained to offer a few objections to it. The sole plea that can be advanced in time of peace to justify the operation by governments of public utilities is that governments can provide better service at less cost to the public than can private operators. Careful investigations by trained investigators do not bear out that plea. On the contrary they show that the operations of government in the economic field are generally characterized by inefficient management and excessive cost. It cannot be otherwise because the appointing power is changed from time to time and the universal rule is tc change the appointees, and that necessarily must result in inefficient and wasteful management.

The fault may not lie with the men appointed but with the system; the length of service may be too short to enable the appointee to learn how to manage the business. The recent war demonstrated the inefficiency of governmental management. The very fact that men noted for their talents in organization and management of great industries and great utilities were called to direct the many war activities of the nation proves it. Statistics show with such overwhelming force that the chance of success of municipally operated public utilities is far less than it is with those privately operated—that it would seem sufficient to convince the most skeptical, but the theory is an attractive one and will con-

tinue until someone is able to present the entire case in such a manner as to finally dispose of it. For all the progress which has been made in industry and the discovery and development of natural resources we are indebted to private enterprise. Our country has been developed upon the theory that the individual is the unit, and that within certain limits he is free to plan and perform his work. How well he has done that is known—a new race was made, the American, whose character is initiative and aggressive individualism.

New Mains

By the ruling of the commission a gas company is obliged to lay one hundred feet of main to supply one customer whose sole obligation to the gas company may be to pay to the company the munificent sum of fifty cents each month so long as the meter remains in the house. It is my belief such a consumer would agree that for at least three years he will use and pay for such a quantity of gas which will at regular rates amount to at least 25 per cent of the cost of laying the main, or the length of main required to be laid for one consumer should not exceed fifty feet.

Valuation

The gas company is an essential part of the community it serves. The industry responded promptly and efficiently to the military needs of the nation in the production of materials needed, and the response is free from the charge of profiteering and was made solely for public service. During the past four years public utilities have had to contend on the one hand with wages and costs of materials increasing by leaps and bounds, and on the other with more or less stationary return for service rendered. The result of this condition is that some companies have been brought to the verge of bankruptcy and many have not earned dividends. The market for gas securities has been impaired so that it is almost impossible to obtain new capital with which to make the improvements demanded by growing communities or required by the commission, and if obtained high rates of interest are demanded by the loaners. Money is a commodity just as iron is a commodity, and as the cost of commodities has increased so has the cost of money increased. Even when an increase of rates is allowed the valuation of the property involved and the rates allowed are so low that the companies cannot earn even a reasonable return on the capital invested. Now capital is needed from time to time if gas companies are to continue to give adequate service or, in fact, any service to the communities in which they operate. In the matter of a rate case the Maryland Public Utilities Commission recently said, "While the property of this company nominally belongs to its stockholders, subject to mortgages held by its bondholders, the public itself is interested even to a greater extent than either the stockholders or bondholders in the continued proper operation and maintenance of such property.

In the case of operation, the public is the first to suffer from inadequate service. Inasmuch as proper service can never long be rendered in any line of business enterprise without reasonable compensation, it is incumbent upon the public to pay for the kind of service it desires, and such public cannot justly complain if it does not receive a character of service better than that for which it has paid.

A State regulatory body could do no greater harm to a community, so entirely dependent upon the services of a public utility company, than to refuse to permit it to charge such rates for its service as will enable it at all times both to command the investment of money necessary for the making of required extensions and continued maintenance of its property in efficient condition, and also to render such character of service as the needs of the community reasonably require. Municipal authorities and regulating bodies must adopt a broader view of the situation and make prompt adjustment of rates so that the credit standing of public utilities will be restored and a market made for their securities at reasonable rates, and investors assured that their savings will not be confiscated in any part, for investors demand stability as an incentive to invest in public utility securities. The recent decisions of some of our courts indicate that commissions must give higher valuations and higher returns on those valuations if they wish to have their orders in rate cases stand as made. So long as a plant is in a condition to give practically as good service as when first constructed, and does give such service no deduction should be made in the valuation for theoretical depreciation. If we are required to furnish 100 per cent of service with the plant as it exists we should have a fair return on 100 per cent of investment value.

The Illinois Public Utilities act provides that not merely shall the rates be non-confiscatory but that they shall be just and reasonable. A rate of return that was just and reasonable in 1914 is not a just and reasonable rate of return in 1920.

Committee on Valuation and Rate of Return

During the past year a committee on valuation and rate of return was appointed to study questions relating to valuation of and rate of return on the properties of the various public utilities. This committee, made up of men eminent for their ability in the different utilities, has held several meetings and has made a report to the officers of the associations. The report is able and full and should be read carefully by everyone interested in the successful operation of public utilities, and I recommend that this association, in co-operation with other public utility associations, appoint a permanent committee on valuation and rate of return.

A Glossary of the Mining and Mineral Industry

Author, Albert H. Fay Published by U. S. Bureau of Mines. Clothbound, 9 by 6 inches, 754 pages. Price, 75 cents.

This is a worth-while contribution to mining literature and will fill a long-felt need. It contains about 20,000 terms; these include both technical and local terms related to metal mining, coal mining, petroleum and natural gas and metallurgical works. It presents in one comprehensive volume the available standard, technical terms relating to mining and mineral industry.

Definitions in use by engineers of high national and international reputation are given first preference. Immediately following each term the name of the locality wherein the word originated is given, the name of the author follows the definition and serves as a key to the publications listed.

Deplores Tendency to View Gas as the Main Commercial Product to Be Obtained from Coal

Herbert B. Coho of Opinion that Central Market for By-Products, Established Co-operatively by Gas Companies, Would Represent a Big Step Towards Better Things for the Industry

For some unexplained reason not apparent to the engineers who have grown up in the industry in the last twenty years, in this country gas has been considered as the main commercial product to be obtained from coal, while, as a matter of fact, had it been clearly demonstrated in the early days that gas was really a by-product, and that the important oils, etc., which were frequently washed into streams, polluting them and making them unfit for habitation—destroying the vegetation and the fish, were, after all, the real value in the coal, and that we were simply throwing away 80 to 90 per cent of the products which have since become the backbone of the new chemical industry, our country undoubtedly would not to-day be suffering from this tremendous high cost of living, so apparently the result of underproduction and extravagance, declared Herbert B. Coho in an Illinois Gas Association convention paper.

It would be comparatively easy for any given number of gas companies to form a co-operative association through which to dispose of their ammoniacal liquor and condensates by agreeing to sell only through the bureau, leaving it in the hands of the bureau to make all of the commercial arrangements for the disposal of the product. This, of course, would necessitate the employment of capable executive heads and would require a directing committee whose power would be absolute in the matter—and there is no question that with such a plan the net results to the participating companies would be far greater than is now the case, where they are left to the mercy of those desiring to use the ammoniacal liquors and condensates for developing products of their own. The investment for the bureau would not be a heavy one, for the reason that the material being billed to the co-operative bureau would only be paid for as cash was received, so that the expense would be simply for the executive staff, storage space, clerical hire, etc.

Could Be Made to Pay

That such an arrangement could be made to pay and pay very handsomely can go without comment, but of course the bureau would be dependent upon the large interests who are now using ammoniacal liquor and would be more or less at the mercy of those people as to the amount of material which they would take, with this exception: that the co-operative committee would provide storage and be prepared to carry the surplus materials during the seasons when not in demand for the various activities and manufacturing processes in the open market. In other words, it would be a sort of cold storage proposition which no doubt could earn a very fair return to the company, and without the investment of very much capital. It is estimated that 100 small gas companies in a given zone putting up $1,000 apiece to finance and support the co-operative bureau could very easily obtain a return of three or four times that amount per annum, and in addition have the benefit of the information which such a bureau would gather, which would be at the disposal of all the subscribers. So that it may be safely stated without much fear of contradiction that a central market for by-products disposal might be termed a co-operative bureau for the marketing of gas plant products. While no definite figures have been made upon this plan, it is one which well may interest the presidents and managers of gas companies in the gas field.

Now, the plan for the formation of a co-operative gas by-products corporation: As already stated, it is a mystery to the average man who gives any thought to science, or is at all familiar with the valuable volatile matters contained in the average run of coal found in the earth in the United States, why it has remained for the present generation to realize that illumination is not a primary factor of a gas company, and that the wonderful storehouse of riches contained in our coal fields was undoubtedly placed there for us to work out the problem of living and the problem of maintaining the human race. Why should we have gone on for generations turning our coal into coke and returning all the natural gases, 90 per cent of the volatile matter contained in the coal; why we should to-day be burning coal in our gas companies simply to make gas for purposes of illumination and some cooking and heating; why should we in our homes, in our locomotives, and in thousands of other ways burn up our most valuable storehouse of riches, thus robbing future generations, is as much a mystery as why a man might first burn up his furniture, then his inside trim, and finally his house to give himself temporary respite from the cold.

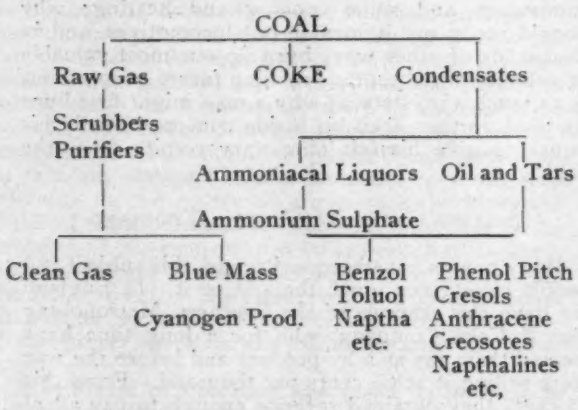
Selling Gas at 35 Cents a Thousand

Many papers have been written on this subject and people have given much thought to it. In England we have the example of the Southern Metropolitan Gas & Coke Company, who for a long time have treated their gas as a by-product and before the war were selling it at 35 cents per thousand. From this 35 cents they obtained revenue enough to pay all of their operating and overhead charges, leaving them free to conduct their distillation processes as a separate industry, upon which they realized very handsome returns. Therefore, in this paper we are trying to point out just how a co-operative bureau such as we are outlining can be of great benefit to the gas industry per se, and how the question has become so

serious as to be national, for the reason that if we continue to waste the volatile matters contained in our coal we are getting ready to pay Germany a subsidy by our own extravagance. Further, if some plan is not devised by which these valuable condensates are not reclaimed, we are laying up for future generations the condemnation of having robbed them of their heritage.

This problem is of just as great importance as reforestation or other conservation, and we approach it not only as an economic proposition but from a business basis, and while we may be calling attention to the opportunities presented by a bureau such as we are outlining bring criticism and condemnation from those interested in getting high prices for their products and purchase the condensates from the gas companies at their own figures, it seems to us that the subject is one that should be given thought and brought to the attention of the heads of gas companies; and more paricularly it is one which should be brought to the attention of the public. The public is no longer an ignorant mass, particularly in the United States It is only necessary to show the public in a common-sense, reasonable, definite way that they are being robbed and that they are robbing their children and their children's children of things far more valuable than gold and silver to have them ask the question, "Why?" And once the question is raised intelligently it will be up to us of the engineering profession to be able to answer to our own and their satisfaction. When a bridge falls it is no excuse to the public to say that the engineer made a mistake in the wind stresses or other figures. The answer is, "The bridge having fallen, that type of engineer must no longer be employed." Ignorance is no excuse, and when we break nature's laws, either through ignorance or wilfully, the penalty is the same.

We are taking the liberty at this time to present first the most salient items which are obtained by every gas company making any coal gas whatsoever. If you will look at the table you will see that the first three results obtained in making coal gas are gas, coke and condensates.



Gas

This is the subject with which you are all familiar. You are worried about gas in competition with electricity; you are worried about disposing of gas under B.t.u. basis or on the candle-power basis; you have had all sorts of legislation passed, so that it is non-essential, as far as this paper is concerned, to say anything further about gas along these old lines. During the seven or eight years that it has been my pleasure to attend your convention I have heard all about gas as an illuminant, gas as a fuel, and gas as a dominating factor in the gas industry, but it was only last year that one man got up and took the gas fraternity to task for having neglected the tremendous opportunities at their door. It is useless to point out at this time, but I may do so in passing, that it would have been and is just as feasible to make gas at the mines and transmit it thousands of miles by pipes to central places where it can be used as it is to make current from water-power and transmit that current many miles; and the interesting thing about it is that if this method of production had been followed water-power could not have in any way competed, for the reason that the only expense connected with the gas would be the transmission line and methods of pumping, pressure, etc., while 80 to 90 per cent of all the valuable matter would have left for use in the organic chemistry field and many other ways. The saving in that field would have paid the interest on the pipe lines. The argument will be raised that thousands of men would have been thrown out of work, as when the steam locomotive came in and when the automobile was introduced. We all know in our present enlightenment that these questions are purely the cries of ignorance, and that anything which stands in the way of progress of an economic nature must expect to meet with these childlike criticisms.

Coke

Take the problem of coke. Due to the present high price of coal and to many other conditions which have presented themselves during the past five years, coke has become of tremendous value. While there are some difficulties presented in the burning of gas coke in the ordinary home furnace, the net result in the way of heat units and the hot fire has proved so satisfactory that the coal companies already find a difference in the demand, in spite of the cries which they make that you cannot bank your fires and that the ordinary householder cannot use coke satisfactorily. This cry has been disproved many times, and if some study had been given to the mixing of a small amount of coal with coke the tremendous car congestion which is now experienced in bringing in the various sizes of domestic coal could have been avoided. It goes without saying that everything is the result of propaganda. Matters good, bad and indifferent all must be hammered, and people must be educated. There is probably no more fruitful opportunity for a bureau such as the co-operative bureau outlined to develop methods of using coke, storing it and shipping it, and, above all, introducing the public to the advantages of this wonderful material for heating, cooking, etc. The prices charged for coke can be regulated, and it can be shipped just as coal is and at practically the same rate, so that a co-operative bureau such as we have outlined could make a tremendous dividend upon this feature alone. Of course, there is a great deal of coke which can be used in the water gas producers, and it may be discovered that some of the Illinois coal, while making an inferior grade of coke or not being coking coals at all, yet

once the direction of inventive minds is turned to this subject it is not without the bound of reason that new methods and new processes will be discovered. If our conclusions are wrong we want them straightened out, and if our conclusions are right we want the criticism.

Ammonia Liquors

Ammonium sulphate derived from the ammonia liquors of the gas companies and cooking ovens forms the foundation of the ammonia industry of our country, and this will be so as long as gas companies and coking ovens exist. The supply and demand of this material govern the ammonia price to the fertilizer market. The gas companies generally contract for the total output of their ammonia liquors at a price below what they could obtain if they controlled the manufacturing and marketing of ammonium sulphate. It is true that the new ammonia processes will form a factor in the future in determining the price of ammonium sulphate. However, it must be remembered that ammonia will always be connected with the manufacturing of gas and distillation of coal, and that the price will never reach a point where this material will become an unprofitable product. As already indicated, a co-operative association would so handle this product that a more stable market price could be forecast, and, further, the distribution of supplies could be arranged to prevent market disturbances. This is very necessary, as there are probably very few products on the market which have such a fluctuating value as ammonium sulphate. You can readily infer from this that it would not be very long before the directors of such an association as above outlined would recommend the installation of several plants at various selected centers to work up the ammonia liquors from all gas companies within a certain radius from each center. In other words, zones would be mapped out having a plant as the center of each to work up these liquors. There would be a board of directors whose duty it would be to govern these zones and see that the various centers were supplied with enough material to cover demand and distribution, with the idea of preventing too great a stock accumulating in any special center, and giving the benefit of short freight haulage to the fertilizer manufacturer and the farmer. It would not only lessen the freight congestion on the railroad but would be a direct benefit to the public, cutting down the price of raw materials to the farmer, who could thus afford to cut the price of his farm products and thus directly benefit the public consumer. Such a plan offers one of the direct remedies to the present high cost of living, and, further, would act as an economic factor in the distribution of so necessary a product. The argument will be raised that it will be uneconomic to put it up to so many small units to accomplish such results, but you will note that these specified units will have other duties to perform, which are outlined in the following paragraphs.

Condensates

As stated before in this paper, every boy who has lived in a small town knows the stream called the gashouse run. It was filthy; he could not swim in it; it had a bad odor and was altogether an extremely disagreeable and dangerous stream. It is quite an eyeopener to find that that very stream, which in our boyhood days was synonymous of about all the meanness of dirt which we could think of, was really a gold mine; and yet, twenty-five years ago, had anybody made this statement he would have been laughed to scorn, just as, and probably more than, the man who is constantly raising capital to extract gold from sea water.

The Sand Dunes of China

Now, we all know without further comment that we get out of life about as much as we put into it. We know that if we wish to keep the soil productive we must fertilize it, and we know that if our condensates are refined and products reclaimed from the amount of coal which is burned every day for lighting and cooking, the question of cheap fertilizing agents, cheaper pharmaceuticals, dyes and other organic products would be solved; and yet we hear of men who are going to nationalize our railroads, nationalize our electric plants, nationalize everything, while the fact goes unheeded that unless we regenerate the soil and promote intensive cultivation and promote cheaper organic products, very soon we will have no railroads to nationalize and no country fit to live in. No one can read the history of China and the terrific sand dunes which were once fertile fields without realizing how prodigally they wasted their forests and their natural products. And the present generation is paying the penalty. It does seem as if we should not have to go through this, and that something can be done before the matter becomes so serious as to be a menace.

The refining of the condensates from gas plants and by-products recovery of coke represent an equally if not more important fundamental industry than the working up of ammonia liquors. If no ammonia were obtained from coal, other methods could be devised to make ammonia; but with the organic products obtained from the coal condensates we obtain materials which we could not economically manufacture synthetically. We must therefore consider it our duty to consider the most economic methods, both as to refining and the distribution of the very valuable products which are obtained by refining such condensates. The so-called by-products from the gas and coke industry are the very foundation stones of a large and necessary industry new to this country and which must be fostered unless we wish to go back to pre-war times and depend on Germany and other countries for the most valuable manufactured products. It is our duty, gentlemen, to assist in every way the building up of a permanent organic chemical industry in these United States. We cannot expect our government in Washington to offer us proper protection in such an industry unless we do our part and show them that we are in earnest and willing to put our shoulders to the wheel to overcome every obstacle which may present itself in establishing such a remunerative and fundamental industry, and that we are willing to sink a lot of money in perhaps the largest industry of a highly civilized country, making ourselves not only independent of external sources but appreciative of the bounty nature has placed at our feet.

PUTTING THE BY-PRODUCTS INTO MARKETABLE FORM

The plant units already indicated for ammonia liquors would be extended to take care of the coal-tar condensates from the respective gas and coal companies in each zone. It is not necessary to go into detail here as to the various products produced from these condensates, these subjects having been so thoroughly discussed in the literature of the last few years that we are all conversant with them. It would be manifestly uneconomical for each zone plant to work up these condensates to produce all the fine products that are required in other industries. However, it would be the duty of each zone to work up the primary products and only finish those products for which there would be a demand in the zone. For the refined products it would be necessary to send certain of the partly refined condensates into a zone where there would be a demand for products obtained in these partly refined condensates, and in this way an economic condition would be created, as the zone where the demand existed would have enough material to work with to make the extended plant for distillation economic by turning enough product and by being able to operate practically continuously. On its face this plan appears complicated, but it is really simple, and if only proper thought is given to the matter it will be easily realized that its operation is economic, that the benefit to the country would be enormous and the profit to the gas and coke companies far outreach anything they can accomplish to-day, and they would derive the full financial benefit between the plant and the consumer of the refined products. As to the proper accounting, each gas and coke company associated would receive the credit for everything delivered to the association and get the full value less the refining and distributing cost. They would not have to worry about holding out for better prices, they would not be at the mercy of any large financial interest; they could always be assured that they were being fairly dealt with; they would have a board of directors of their own choice, and they would enjoy innumerable benefits from the force of engineers and other staffs of such an organization. This is no idle dream, even if it appears ideal to the companies. It is a necessity if we wish once and for all to create a firm and lasting industry and one which will have no equal in this country. Now, it is not necessary at this time to go into the matter of the products which are derived from coal, but we give a partial list to show the vastness of this industry and also the benefits to our economic needs and prosperity.

Coke—
- Metallurgical coke
- Domestic coke
- Coke breeze by-products

Oven Carbons—
- Electrodes
- Lampblack
- Graphite
- Lubricant
- Crucibles

Gas, Gas Liquor and Tar—
- Carbon bisulphide
- Benzol
- Toluol
- Kylol

Ammonia Aqua—
- Ammonia anhydrous
- Cresol
- Ammonium sulphate
- Ammonium nitrate
- Ammonium chloride
- Ammonium carbonate
- Pyridin
- Solvent naptha
- Carbolic acid
- Neutral oil
- Napthalene
- Anthracene oil
- Anthracene
- Carbozol
- Refined tar
- Pitch

Cyanogen Products—
- Sulphocyanids
- Ferrocyanid
- Ferricyanid
- Prussian blue

A further duty of the association would be to study uses for products hard to market.

In the first place, it would be necessary to form a co-operative by-products bureau, which would necessarily have to have capital. We have figured that this matter is of enough interest for 500 gas companies to put in $2,000 each and 1,000 companies to put in $1,000 each, giving us a working capital of $2,000,000.

The first (initial) cost, of course, is to employ a big, strong man to organize the bureau and tell each company the part it would be expected to play. This would involve the employment of men who would study most carefully the economic handling of the various mechanical equipments of the gas companies, and it would be a very small company which could not afford to pay $1,000 or $2,000 per year for the services which engineers of this class could give. Your directing man and your other men would have to be high class and men with vision, and paid very high salaries. They could probably be obtained right from your own ranks; but they must not be bound by outside interest, nor must their ideas of development be thwarted by other aggregations of capital with which they may come into competition. Their primary object is, first, the welfare and development of by-products for the good of the public, or, as Lincoln said, "The greatest good for the greatest number." Their second object is to get for the gas companies the best results due to efficient operation and co-operation so that the gas which they make may readily be sold to the public as fuel, making the transportation of coal, etc., except to the gas companies, practically non-essential; and, thirdly, the great object is to give and promote the organic chemical field, upon which we are dependent for all those articles which make for and preserve life and help us in sickness; which, unless this country wakes up and promotes on the most economic and most basic principles, will be dominated by the Germans, who have realized more than we, due to the close competition of their lives, that the points which we are bringing out here are not just idle dreams but real economic factors which the engineering profession must approach not on a theoretical basis but in a definite business and common-sense way.

The operation of a bureau such as we have outlined would, of course, be one of zones. Manifestly, the man with a small number of barrels of condensates finds it very easy to ship to some large manufacturer, so that it will be necessary for the bureau to establish plants at given points—all of which should be studied out and established by the man put in charge of the work, who must have absolute authority. The companies operating would send

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As the Journal Views It

Self-Confidence Saves Dollars

"Used cars," declaimed an individual whose business is selling second-hand automobiles, "are sold principally to expert automobile mechanics and fools."

This not being altogether clear to us, we pressed for an explanation.

It was that the expert automobile mechanic is able to determine for himself what he is getting, could buy a used car with just as much confidence as a new car. The fool acts blindly, but being a fool hasn't sense enough to realize the foolhardiness of taking a chance.

The average person of intelligence is naturally adverse to buying a pig in a poke. It may be a sound car and it may be merely metal and paint in the form of a car. He personally is not competent one way or another to determine. Lacking a mechanic who is, upon whose word for it they can rely, this class generally prefers to buy a new car made by a manufacturer of sound reputation so as to be certain.

So it is with diamonds and precious stones, machine parts and gas machines. With the diamonds and precious stones we buy at stores where we pay a premium on the name rather than take a chance.

On gas machines we go to a manufacturer of high repute and put in his hands the whole responsibility, even down to setting up and tuning up the equipment and turning it over to us already in operation.

In these days of financial stress some of us can build up to the needed capacity, which otherwise is impossible, by turning to used, but still efficiently usable, equipment.

But to take such step conservatively we must have specialized knowledge and the self-confidence that it is adequate to the task. In such case our self-confidence

may be worth real tangible dollars in the bank, and a better ability to render service.

Business Secrets

He was, without exception, the best blasting foreman we ever came across. With fifty sticks of dynamite he could get out more rock than the average run of blasters could with a hundred, and he broke it up in handier form. To see him blast rock right up against a live main with never a cracking or even a joint loosened was really an opportunity in the way of seeing how easily impossibilities may actually be attained—if one knows how.

A big contracting firm had that blasting foreman on its payroll at a considerable figure. But he returned them a good dividend on the investment. Yet out of a clear sky, after but an instant's reflection on the part of one of that firm's officers, it fired him forthwith.

The firm had also on its payroll as timekeeper a young technical graduate. Time sometimes hung heavily on this young man's hands. Unconsciously, inspired by bored curiosity, he sometimes sought enlightenment.

One day he noticed that the blaster drilled his holes at a certain angle that he took great pains should be particularly precise. This interested the timekeeper. He asked for the reason.

"If I told you just why I do everything that I do," returned the foreman complacently, "you would know just as much as I do and you'd probably get my job."

The timekeeper saw something very humorous in this retort and repeated the story several times over. It came to the ears of a company official and the foreman was given the opportunity to sell his services elsewhere. This firm didn't want business secrets. It was willing to give its men quite liberal play in finding out how to do things better and cheaper. Sometimes when the experiments turned out sources of expense rather than profit, the firm didn't complain. It believed in give and take. But it insisted that its employees share their knowledge and findings, and it didn't mind even, in fact really approved, of their men helping competitors in the way of advice towards doing their work better and cheaper.

There is nothing that need be secretive in the gas field. There is nothing to hide. Processes upon which the originator is entitled to reward are generally protected by patent. No harm is done to John Jones in Philadelphia, say, if Smith in New York benefits and effects economies through learning of the little kinks that Jones has developed out of his experience that mean dollars saved instead of dollars wasted in the plant operation. Jones can still use the kinks in his Philadelphia work. Selfishness on Jones' part in keeping his findings to himself would not put him ahead any. No one man can originate everything, and the man who is not willing to swap, to give as well as take, doesn't usually get much help from others. In the long run Jones will get ahead farther by giving his fellows a lift and benefiting by the lifts they, in return, will give him than he ever will by playing a lone hand.

Housing Tendencies and House Heating by Gas

Homes are not being built at the rate they should be building, yet they are being built in vast numbers nevertheless.

One whose eyes are accustomed to seeing a living place only in the roomy, rambling type of house of but a few years back cannot but be struck with the predominance of what he would term the "doll's house" type in the new construction. The ten to fourteen rooms, and each of them big enough in floor area to serve as two rooms, house is being submerged in a flood of six to eight room dwellings with but one room—the living room—with enough floor area to much more than accommodate the furniture.

There are extremes, of course, but the AMERICAN GAS ENGINEERING JOURNAL cannot but feel that this is the rational type for the average family in a climate such as is common to the most heavily populated parts of this country.

Roominess, it may be, enables one to ramble about with the lights out without fear of bumping his shins and a chance to expand his chest indoors, but it has its disadvantages.

There is more floor area and ceiling area to be cleaned; there is greater expense in lighting, greater expense in heating, more opportunity for unhealthful drafts and more chance for unsanitary conditions.

It may be accompanied by its advantages, but these are more or less submerged in its disadvantages.

Excessive building costs are, of course, to a large degree responsible for the predominance of the smaller type of dwelling place in modern construction. But the burden of to-day is likely to prove a blessing of to-morrow. It is likely to educate people away from the old notion that a house cannot be a home unless it is so spacious that its occupants, if they will, can be so far apart from each other that one will not know that the other is under the same roof. The more compact type relieves so many of the burdens of the home that those who become accustomed to it will never want to go back to the old type again, even when construction costs permit it.

And the predominance of this type of dwelling place brings the likelihood of the house-heating load of our gas companies, being one of their principal loads, immeasurably nearer.

In this type of dwelling comparative fuel costs fade into insignificance. Heating either with coal or gas, the cost of fuel is radically cut down per family until the difference between them is a small figure.

With increasing heating exclusively with gas, with less surface area to be cleaned and power cleaners to do that, with gas water heating and power dish and clothes washing, the percentage of drudgery in the smaller type dwelling will be so cut down that the servantless housewife therein will find that her housekeeping labor is less even than her mother's was, and this mother provided with at least one servant and perhaps two.

Civilization is tending toward the plane where few hands will be needed for the nasty tasks of life.

Deplores Tendency to View Gas as Main Commercial Product to Be Obtained from Oil

(*Continued from page 244.*)

their material to this central refining plant. It is probable that at first there will be four or five of these plants. As the business is increased there would probably be a zone plant within 250 miles of every gas company in the bureau. It would be the business of this co-operative bureau to organize and work up the market for these products. The capital thus created would be divided absolutely in proportion to the amount of material sent in, as it would be manifestly unfair for a little fellow owning a thousand-dollar share to get the same dividend if he sent in only a few hundred pounds of condensates while the big fellow sending in millions of pounds earned the dividend for him. The object of the co-operative plan is to make it open to every manufacturer or representative gas company in the country.

It is further the object of this association to carry on a research bureau and to keep ahead of the times. This will require splendid executive ability, for which you must pay. The advertising propaganda spoken of is a matter of great interest and requires money, so that the dues—$1,000 and $2,000 per year—must be treated in the nature of dues; they must be spent. Out of the profits which accrue, and which will be large, will be built the refining plants and the dividends will be declared; but fundamentally the object of the bureau is to provide facilities and teach the gas companies and the investing public the tremendous possibilities for such a co-operative plan.

Now, the great criticism will be made that there is no such man available. We do not agree with that. The first essential is a man with vision and a man of integrity. The amount of money we have mentioned as being essential would enable you to do some experimenting. Your first plan is to decide on your organization, appoint a committee representing the engineering profession, the business and chemical professions. The committee will have charge, but the man you select must have at least two or three years to develop this co-operative bureau. Without this any man will fail. Pershing's greatness to-day is due entirely to the fact that he was 3,000 miles from his bosses and was not afraid of losing his job. This may be putting it in a homely way, but to my mind this is absolutely essential.

Now, gentlemen, we do not know whether we have given you any idea of a central market for by-products disposal. As stated at the beginning of this paper, this is an entirely feasible scheme and can be carried out; but the bigger problem—the one which I believe is the thing for you to consider not only from the viewpoint of your own investors but from the viewpoint of the public at large and future generations—is the co-operative bureau, which will provide central refineries to which your condensates may be sent, leading the public to use coke, and, above all, teach your members to handle that most wonderful gold mine, coal, in a fitting and proper manner and with the reverence which it deserves.

Best Appliances for Central Heating Jobs Are Gas-Fired Boilers for Hot Water and Steam and Gas-Fired Hot Air Furnaces for Hot Air Systems

P. M. Spies Also Found Gasteam Radiator a Popular Seller—The Appliance and the Work It Is Best Suited for

The following is largely a narrative of the growth of the House Heating Department of the Peoples Gas Light & Coke Company of Chicago, and of the methods practised in securing and maintaining this class of business, declared P. M. Spies, in a paper on "House Heating by Gas," presented at the annual convention of the Illinois Gas Association.

During the latter part of 1916 it was decided that a House Heating Department would be of great advantage to the company in securing additional consumption and profit on the sale of appliances, as well as to the public in that only the most efficient appliances would be offered and expert advice rendered as to the best type of appliance for the job.

Fuel gas was sold at 40 cents per 1,000 in certain parts of the city, and many homes were still using the same equipment in coal boilers that had been used since the time Chicago was supplied with natural gas. We believed, however, that to make a success of the department, both from the standpoint of profit to the company and service to the customer, it would be necessary to obtain appliances rendering better service and higher efficiency than was obtained by burning gas under a coal boiler.

While investigating as to the merits of the various gas heating appliances on the market, a stock of gas burners was purchased to be used in cases where the price of a gas boiler was an obstacle. Several burner installations had been made, giving more or less satisfaction, mostly less, when the supply of fuel gas was discontinued and the mains interconnected with the illuminating gas, selling at a flat rate of 80 cents per 1,000.

Getting Down to Higher Efficiency

High bill complaints now became so numerous that it was decided to entirely discontinue burner installations in coal burners because of the extremely poor efficiency and general unsatisfactory results obtained.

Another factor that made this change advisable was that the small profit obtained on the installation did not cover the expense of the frequent inspections necessary to keep equipment in adjustment.

After considerable investigation, we were convinced that the best appliances to use for central heating jobs were a gas-fired boiler for hot water and steam heating, and a gas hot air furnace for buildings having hot air systems.

A sliding scale rate being placed in effect shortly after, enabled us to offer gas heating service with our efficient appliances at a cost approximating that formerly obtained with the converted coal boiler on 40 cent gas. This rate helped largely in obtaining a good start with these appliances.

Another very profitable appliance, which was constantly increasing in popularity and which constituted the bulk of our business, was the Gasteam radiator, with which most gas men are familiar. As first constructed, this radiator, which is unvented, led to numerous odor complaints. After being reconstructed and with proper judgment exercised as to where to use and where not to use, these complaints were almost entirely eliminated.

A quantity of ventilating gas radiators were purchased to take care of bedroom heating and such residence and store jobs as permitted use of a flue radiator.

The Ventilating System of Heating

Although we installed several jobs, using this system entirely, which has given perfect service for several years, the high cost of flue connection, as well as the scarcity of flues in modern buildings, made this system difficult to sell.

Specified along with Gasteam radiators, it was possible to sell many jobs which would have been lost entirely had we no vented appliance for certain rooms in which an unvented heater would have been objectionable.

In addition to the above appliances, we also sell an elaborate Ventilating System of Heating, which is briefly a thermostatically controlled radiator system, operating with an exhaust fan and discharging the entire products of combustion into one flue or vent. Only a few of these systems have been installed because of the high cost. It may be stated, however, that these installations have been perfectly satisfactory.

With the above appliances it is possible to take care of any heating problems that may confront us. It has been our practice to recommend the appliance best adapted to do the work efficiently and with best service to the customer.

Experience showed that the following appliances are best suited to certain classes of work, viz.:

Gas Boilers

(a) High and medium class residences already equipped with steam or hot water systems or new buildings in which these systems are to be installed.

(b) Factories, business houses or churches already equipped with steam or hot water systems.

(c) Private and public garages.

(d) Special classes, such as fire engine heaters, fire protection sprinkler heating systems in which it is desired to protect the gravity tank or pent house piping from freezing, private or public bath houses having steam or vapor baths.

(e) Any low pressure steam or hot water job in which absolutely uniform or automatic controlled temperature is necessary.

Gas Hot Air Furnaces

(a) Residences already equipped with hot air heating systems or cases in which the high cost of a radiator system is prohibitive.

(b) Stores or public buildings already using hot air heat.

Gasteam Radiators

(a) Stores, factories, churches and theaters not equipped with central heating systems.

(b) Middle and poor class residences heated with stove in which bedrooms are not heated.

(c) Auxiliary heat for all classes of residences.

(d) Special cases in which an unvented heater can be used, such as pent houses, fruit ripening rooms, etc.

Unit Ventilating Radiators

(a) Residence and general heating in which flue conditions are such that this appliance can be used.

(b) Residence and general heating in which flue conditions allow part of radiation to be vented and the remainder of the unvented type.

(c) Special cases in which a perfectly dry heat is necessary; also cases in which it is possible to operate this radiator without a flue.

Fireplace Equipment

Of the refractory radiant heat type.

Recommended for all vented fireplaces, displacing gas logs, gas or coal grates.

Space Heaters

All jobs requiring a portable or a cheap auxiliary heat.

Following our practice of selling only the very best and serviceable appliances, we early discontinued the sale of gas logs and gas grates.

When interviewing a prospective customer who is interested in gas to displace coal, it is best to first ascertain his reason for wishing to change to gas. This can be gathered from his conversation without actually asking.

Many persons believe that with the present high price of coal, gas is the cheaper fuel. In some cases poor flue or piping conditions are the cause of dissatisfaction with coal, and it is thought better results will be obtained with gas. This being the case, it is best to investigate thoroughly, and if conditions can be remedied, insist that the necessary changes be made before taking the contract.

The necessity of taking this precaution was very forcibly brought to our attention by one of our first central heating installations. We were asked for an estimate on the cost of a boiler to heat a public garage. Being assured by the owner that the only fault with the present system, beside the general inconvenience of coal heating, was too small a boiler, we specified a gas boiler of sufficient capacity for the radiation installed.

After the job was completed we were informed by a local steamfitter that this party always had trouble in severe weather because of insufficient radiation and small mains and returns which had been designed originally to heat only the first floor and now had to heat the entire building, the second story floor being removed when the building was remodeled into a garage.

Acting on our advice, the owner changed some of the piping and the job got by, although considerable trouble was experienced during one long period of sub-zero weather, due to an undersized trapped return freezing on account of insufficient radiation in one end of the building.

Notwithstanding that we consider this our poorest job, it has satisfied our customer perfectly and because of the personal attention given to its operation and the fact that the coal boiler had always been forced, it has cost less to heat this building with gas than with coal.

It is very important to keep in mind when estimating the size of appliance necessary to heat a job, that the maximum heat possible with a gas appliance will be obtained when all the burners are used. In this respect, heating with a gas-fired boiler differs from coal heating, as the rating of a coal boiler can be greatly increased by frequent firing.

Give Generous Heating Capacity

For this reason, the steamfitter will often specify a coal boiler of a rated capacity much lower than the gas boiler we would recommend.

As one of the principal features of gas heat is the ease of control and the fact that gas is consumed only when actually needed, it is obvious that in certain classes of work, such as factories and stores, it will be necessary at least once a week to quickly bring the temperature from probably 45 or 50 deg. Fahr. to 70 deg. Fahr.

To insure the satisfactory operation of jobs of this kind, it is necessary to install a plant of much greater capacity than would be necessary for a residence.

Lack of heat, due to insufficient capacity, is the cause of high bill complaints which would never be received if the customer had all the heat desired.

We are frequently asked, especially by steam heating contractors, how we can expect to do business with a gas rate that makes the cost of gas heating over double that of anthracite coal. There are many answers to this and many arguments to sell the customer.

Some of the advantages of gas over a solid fuel are convenience, which results in more heat, and absolute control, cleanliness, whereby saving on furnishings and decorations will be effected; independence of janitor service, coal storage space, and many special advantages peculiar to certain jobs.

As these advantages must all be capitalized and by persons in different circumstances, it is often possible to obtain a valuation which will offset the differences in cost between both fuels, and to be very frank, it is only the person who can place this valuation high enough to offset the difference, that can afford to use gas, especially in a central heating plant.

Most of our central heating plants have been sold in the homes of the well-to-do small manufacturers who have not yet developed into the millionaire class. The man in these circumstances will appreciate the comfort and convenience that gas heat can afford, and the fact that no dependence upon a janitor is necessary will appeal much more than it will to the extremely wealthy, accustomed to many servants about the house.

Data on Installations

The accompanying figures are based on 565 B.t.u. gas at the rate of 88 cents for the first 10,000 cu. ft., 82 cents for the next 40,000 cu. ft., and 65 cents for all above that amount, plus a small "readiness to serve" charge, depending upon the size of meter.

It is seen that the cost per square foot of radiation per heating season is as follows for the ordinary size residence using a central heating plant:

Steam—60 to 77 cents
Vapor—47 to 62 cents
Water—36 to 46 cents

For the very large central heating plant:

Steam—34 to 54 cents
Vapor—27 to 43 cents
Water—21 to 32 cents

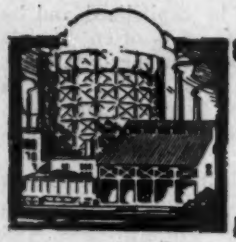
For the individual radiator system, because of closer regulation and higher efficiency, we may claim in comparison to the above:

Steam—33 to 37 cents
Vapor—26 to 30 cents
Water—20 to 22 cents

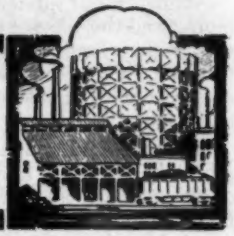
The average temperature during the heating season of 1918-1919 was 41.7 deg. Fahr. The normal temperature for the Chicago heating season is 39 deg. Fahr.

The cost per square foot of radiation for the large installation of 20,800 sq. ft. is fairly accurate, because, although the plant was only intended to heat the residence, it carried the entire load during the season, with the exception of a few extremely cold days, when it was necessary to assist with coal.

Type of Job.	Radiation.	Appliance.	Cost per Season. 1918-19.	Cost per sq. ft. Radiation, per Season. Steam.	Vapor.	Water.
8 room residence.....	538 sq. ft. St.	Gas boiler	$ 416.82	$.77	.616	.462
6 room bungalow.....	275 sq. ft. St.	Gas boiler	258.69	.94	.752	.564
20 room house.....	915 sq. ft. St.	Gas boiler	541.68	.592	.474	.355
8 room residence.....	1,200 sq. ft. W	Gas boiler	547.00	.760	.608	.456
12 room residence....	1,450 sq. ft. V	Gas boiler	819.25	.706	.565	.424
Office and residence..	1,400 sq. ft. St.	Gas boiler	1,041.19	.743	.594	.446
Factory	4,600 sq. ft. St.	Gas boiler	2,477.86	.538	.430	.323
36 room residence.. / 6 apt. svt. bld..... / Conservatory	20,800 sq. ft. W	Gas boiler	4,439.29	.341	.273	.213
20 room residence....	700 sq. ft. St.	Vent. rad.	259.61	.37	.296	.222
Store	783 sq. ft. St.	Vent. sy.	231.35	.338	.270	.203
Store	1,920 sq. ft. St.	Gasteam rad.	697.44	.36	.288	.216
Factory	3,390 sq. ft. St.	Gasteam rad.	1,120.00	.33	.264	.198



NEWS OF THE GAS INDUSTRY



Kings County Lighting Co. Stands Firm on Its No Extensions Attitude

"If the regulatory bodies, which, according to press reports, have entered an order for this company to provide gas to any and all additional consumers, who may apply, will show us how it can be done I will be glad to comply," declared Ralph Elsman, vice-president of the Kings County Lighting Company, Brooklyn, yesterday. "But the mere entering of such an order in no way relieves the situation as the physical condition surrounding it remains the same.

"This company cannot and will not raise the necessary funds to finance the extensions and improvements necessary to supply these consumers under the statutory law now in effect. It would be criminal to ask the people to invest their money in this company when we are compelled to sell our product below cost.

"This order has not been served on me and until I have received it I am loathe to believe that the Public Service Commission has asked us to do the impossible without providing some means whereby we can carry out instructions.

"The city has attempted to block every move of the Public Service Commission in its efforts to see that the interests of the people are served. It is hard to understand the attitude of the city officials in this case for they represent no one, but they are taking the stand of depriving nearly a quarter million people of their rights.

"It is no longer a question of theory but it is now time that the people are made to realize that this company has been made the legal football by self seeking politicians who have no real interest as to the price of gas, but who are attempting to mend their political fences before the people have an opportunity to express themselves at the polls next election. For the past two years I have been warning the people and officials that the present situation was coming unless some relief was granted, but this has had no effect on the politicians who have tried to block every move to bring this matter before the public.

"Because of the attitude of certain politicians who have tried to conceal the truth in every way, we are without funds to make any extensions to our plant or to add any consumers and there is no possibility of our raising any money. We are faced by a gas oil shortage that means that unless we are in a position to pay the price demanded in the open market for the limited supply available, that the gas supply not only to possible future consumers but to our present consumers will have to stop.

"The contract of my company for oil supply expires within a short time. If I am unable to arrange a new contract and the supply of gas is stopped there is a grave possibility of many lives being needlessly sacrificed. I will not take the blame for this impending disaster. It is clearly up to those who are fighting, not this company, but the very public they have been chosen to represent. This condition cannot last much longer for the people will not be fooled all the time. I am absolutely in earnest and I stand in back of every word I utter. Now it is for someone to act. The people will know best on whom to bring pressure to obtain justice for themselves."

The Kings County Lighting Company serve the sections of Bath Beach, Bay Ridge, Bensonhurst, Borough Park and Fort Hamilton, all of which are embraced in the thirtieth ward and part of the thirty-first.

THE MIDWAY GAS COMPANY, Los Angeles, Cal., at meeting of the stockholders re-elected the directors as follows: A. C. Balch, S. Waldo Coleman, A. Haas, W. G. Kerckhoff, A. B. Macbeth, Ben R. Meyer and Ferdinand Reis, Jr. The directors organized by re-electing the officers, namely: Ferdinand Reis, Jr., president; William S. Pardy, secretary; A. E. Peat, treasurer, and A. B. Macbeth, general manager.

Peoples Gas By-Products Corporation Organized

The Peoples Gas By-Products Corporation is sending out the following letter to the public:

"Gentlemen.—We take pleasure in announcing the organization of the Peoples Gas By-Products Corporation. We will sell the by-products manufactured by the Peoples Gas Light & Coke Company of Chicago.

"We are also pleased to announce that we have established permanent connections in New York, Cleveland, Minneapolis, Kansas City and San Francisco, and will be glad to have our representatives in these cities call upon you at any time at your convenience.

"Yours very truly,

"PEOPLES GAS BY-PRODUCTS CORP.
"W. C. WETMORE,
"Sales Manager."

Grand Rapids Gas Company Must Accept Rate Fixed by Commission

The Grand Rapids (Mich.) Gas Light Co. must accept such a franchise as the city commission offers it or go without one as the result of action taken by the special gas franchise committee of the city commission.

The gas company recently has refused to turn over to the committee a statement of its earnings since 1896 as requested and the committee has instructed the city attorney and director of public service to go ahead with the drafting of the proposed franchise, paying no attention to requests of the company for consideration on certain points.

The proposed rate for gas to be placed in the franchise will be based on the valuation of the property as fixed by the city. It is a foregone conclusion that the franchise when completed will not be acceptable to the company, and the whole subject matter will have to go before the State Public Utility Commission for settlement.

Papers Read at Sixteenth Annual Convention and Exhibit of Illinois Gas Association Timely and Interesting

W. J. Hagenah Discusses Appraisals and Rate Return for Utilities—Horace H. Clark Elected Vice-President

At the sixteenth annual convention and exhibit of the Illinois Gas Association, held at the Sherman Hotel, Chicago, Ill., March 17 and 18, the following officers were elected for the coming year: President, W. M. Whipple, Aurora, Ill.; vice-president, Horace H. Clark, Chicago, Ill.; secretary-treasurer, R. V. Prather.

Mr. Prather is secretary of the Illinois Electric Association and of the Illinois Street Railway Association. His services are free to any gas man who desires advice on questions with the Illinois Public Utilities Commission.

H. M. Clark retires as secretary-treasurer of the Illinois Gas Association after eight years, during which a great deal of the success of the association is due to his efforts.

All of the papers presented were timely and interesting. The paper entitled "Appraisals and Rate of Return for Utilities," by W. J. Hagenah, was of special interest at this time. Mr. Hagenah showed by the use of charts the rise and fall of labor and raw material prices during the past 100 years. These statistics were taken from those compiled by England, as they went back farther and were compiled more in detail than those compiled by the United States Government. Another chart showed the rise and fall of prices of bonds of four organizations during twenty years, namely: Industrial manufacturing, which is not under the control of any Government commissions; railways, under supervision of the Interstate Commerce Commission, and utility companies, under supervision of State public service commissions. This chart showed that in normal times the bonds of utilities kept equal as an investment with the other groups. When abnormal conditions arose they were the first to suffer, because, unlike the manufacturer, they could not promptly readjust prices to meet the increased expense. At the time when the utilities raised wages and also had to pay more for materials they had to make application to the State Public Utility Commission before being permitted to increase prices of their product. Frequently several months would elapse before a decision was rendered. Favorable decisions were sometimes secured, but in the meantime there were further advances made in cost of material and further advances had to be made to labor, so that a further plea for increased rates had to be made. Thus the utility companies' securities were bound to fall in price. The conclusion was that a fair return to utility companies under present conditions should be at least 8 per cent, which rate would place them in a position to successfully bid in the money market for new capital to make extensions and other betterments to meet the constantly growing demands of the communities they served.

J. H. Gunz, in his article on "Industrial Gas for Better Load Factor," emphasized the fact that the same energy in selling industrial appliances as put in household appliances would produce so much greater results. He mentioned one example of the sale of six burners at $100, or about the cost of a high-class gas range. The burners consumed over 400,000 cu. ft. of gas per year, and compared this with the amount one or two gas ranges would consume in the same time.

The paper "Friendly Relations with the Public," read by B. J. Mullaney, pointed out the great benefits accruing to those companies who were establishing ever more friendly relations with their consumers.

The following new members were elected:

Active Members—W. H. Bettle, Charles R. Burke, H. W. Edmund, H. F. Foley, H. Edward Heil, Martin J. Insull, C. V. Luby, E. E. Lungren, R. B. Richardson, H. K. Mitchell, W. B. Way, C. B. Paullin, I. Paul Clayton and J. L. Bristow.

Associate Members—H. G. Hall, S. E. Lineaweaver, Joseph Little and E. F. Ripley.

The total of all memberships of the Illinois Gas Association is 487.

An amendment affecting annual dues to the association was adopted as follows: For companies with receipts up to $15,000 per year, annual dues $10; from $15,000 to $25,000 per year, $15; from $25,000 to $50,000 per year, $25; over $50,000, $25, and 25 cents on each additional thousand.

The following firms had exhibits at the meeting:

	Booths
Welsbach Co.	26-27
Ill. Specialty Mfg. Co.	43
General Gas Light Co.	29
Johnson Gas Appliance Co.	42
Foxboro Co.	28
Republic Flow Meters Co.	15
Bryant Heater & Mfg. Co.	44
Bristol Co.	36
Geo. D. Roper Corp.	16
American Meter Co.	10
Lattimer Stevens Co.	11
Hurley Machine Co.	13
Connelly Iron Sponge & Gov. Co.	35
Geo. M. Clark & Co. Div.	5
Reliable Stove Co.	31
Detroit Stove Works	9
Jas. B. Clow & Sons	45
Kompak Co.	47
Am. Ironing Machine Co.	46
Perfect Combustion Co.	40
Strause Gas Iron Co.	17
B. & K. Mfg. Co.	21
Sprague Meter Co.	34
General Electric Co.	33
Rathbone, Sard & Co.	2
Judd Co.	1
Surface Combustion Co.	38
Crown Stove Works	37
Am. Steel Treaters' Society	39
Felt & Tarrant Mfg. Co.	14
Chicago Flexible Shaft Co.	8
Chicago Tubing & Braiding Co.	25
Western Electric Co.	3
Federal Sign System (Electric)	6
Equitable Meter Co.	48
Edison Electric Appliance Co.	4
International Harvester Co. of America	32
Special Chemicals Co.	41
Paul Machler Co.	12
P. H. & F. M. Roots	30
Reynolds & Taylor	7
Landers, Frary & Clark	20
Chicago Boosters' Publicity Club, Inc.	24

Three Million Feet of Gas

When the National Oil Company deepened its Breon test near Arkansas City, Kans., three feet deeper, the gas flow was increased to three million feet. The total depth is 3,230 ft. The well is three miles southeast of Arkansas City. It is showing a small amount of oil.

Gas Price List of Cities Used in Norfolk Rate Controversy

Officials of the City Gas Company, Norfolk, Va., have tabulated a list of the gas rates now prevailing in fifty-eight cities in the East, to be used, along with considerable other information, by Charles B. Cooke, utilities expert, in determining whether the proposed increase in the Norfolk rates from $1.30 to $1.70 per 1,000 cu. ft. is justified.

Of the twenty-three cities of this list nearest Norfolk's class, eighteen have cheaper rates than that proposed for Norfolk in the gas company's petition to the State Corporation Commission. The remaining five have higher rates than the proposed new rate for Norfolk. Thirteen of these cities have rates that are lower than Norfolk's present rate of $1.30 per 1,000 cu. ft.

The rates prevailing in the twenty-two cities are as follows:

Baltimore	$0.85
Charleston	1.00
Savannah, Ga.	1.10
Wilmington, Del.	1.10
Philadelphia	1.00
St. Louis	0.85
Atlanta	1.10
Jacksonville, Fla.	2.00
Harrisburg, Pa.	1.10
Nashville, Tenn.	1.20
Knoxville, Tenn.	1.20
Staunton, Va.	1.50
Martinsburg, W. Va.	1.85
Memphis, Tenn.	1.00
Greensboro, N. C.	1.75
Lebanon, Pa.	1.40
Chattanooga, Tenn.	1.10
Roanoke, Va.	1.20
Raleigh, N. C.	1.65
Lynchburg, Va.	1.35
Fayetteville, N. C.	2.00
Miami, Fla.	1.90
Mobile, Ala.	1.45

N. Y. Consolidated to Aid Richmond Gas Company

The Consolidated Gas Company of New York has agreed to furnish to the New York & Richmond Gas Company 200,000 gal. of gas oil per month for a period of three months in order to relieve the straitened conditions of the latter concern. This subject was settled at a hearing before Public Service Commissioner Lewis Nixon.

The Consolidated Gas Company will charge for gas oil furnished to the Staten Island concern at the rate of 7 cents per gallon, plus lighterage. The agreement reached provides that if at the end of the current year the Consolidated Gas Company should have to enter the open market for the purpose of purchasing supplies of gas oil the New York & Richmond Gas Company would make good any differential which might exist in the price of the commodity at the time purchased.

El Paso Company Asks for 20 Per Cent Increase in Rates

The El Paso (Texas) Gas Company has filed with the city council a petition asking for relief from the terms of its present franchise, setting forth the declaration that the present service to the public could not be maintained unless the price of gas to the consumer was advanced.

The El Paso Gas Company states in its petition that it will require an increase in revenue of 20 per cent per 1,000 cu. ft. of gas if necessary improvements and extensions are made. "Unless immediate action is taken on this matter," the petition says, "it will be impossible for us to complete the improvements necessary to give service to which the citizens look forward and which they have the right to expect."

Increased cost in labor and materials is given as reason for the proposed advance in the price of gas. The petition also says that "capital invested is entitled to a fair return and is not making that return."

The company's net income dropped from $49,135.27 in 1914 to $6,154.59 in 1919, according to the papers placed in the hands of the councilmen. The papers also show that the net income dropped from $18,288.90 in 1918 to $6,154.59 in 1919.

Coal which the company bought in 1917 for $5.76 a ton has advanced to $7.38 a ton, the statement shows, and oil which cost the company $.45 in 1917 has advanced to $.589 in 1919. The company also claims that there is no hope for the price of materials and labor coming down during 1920.

SEAMANS OIL & GAS COMPANY, of Kansas, Boston, oil and gas; capital, $50,000; incorporators, William F. Wheeler, of Malden, and Frank E. Seaman, of Sharon; Charles O. Wheeler, of Malden, and Frank E. Rowland, of Salem.

Hoover Plans to Stabilize Coal Industry

Herbert Hoover, newly elected president of the American Institute of Mining and Metallurgical Engineers, has outlined a program of work for the engineers by which stabilization of the bituminous coal industry in the United States will be sought.

Mr. Hoover characterized the bituminous coal industry "the worst functioning industry in the whole world."

"It is an engineering and economic problem," Mr. Hoover said. "It is a generally known fact that the recent coal strike was due to the intermittency of employment and a demand by a large body of workers for what they thought was a living wage."

Baltimore Consolidated Gas Company's Report

The report of the Consolidated Gas, Electric Light & Power Company, Baltimore, Md., for the year ended December 31, last, has been issued. Because of the change in the fiscal year, comparisons are made with the twelve months ended June 30, 1918.

	Year ended Dec. 31, '19	Year ended June 30, '18
Gross earnings	$12,813,617	$10,619,588
Expenses and taxes.	8,012,905	6,415,683
Net earnings	4,800,711	4,203,904
Charges	2,283,622	2,071,339
Balance	2,517,088	2,132,564
Dividends	1,162,026	1,150,864
Surplus	1,355,063	981,700
Reserves	1,319,000	975,000
Final surplus	36,063	6,700

Hydro Gas Company to Cease Operation

The Indiana Public Service Commission has issued an order permitting the Hydro Gas Company, of Connersville, Ind., to cease operation April 1. The order followed a hearing of the case, during which the company stated that it was operating at a loss. On being informed by the competing company, the People's Service Company, that it was able and ready to care for the Hydro patrons, E. I. Lewis, chairman of the commission, announced that he would issue the formal permission for the Hydro company to cease operation.

Ohio Gas Company Wins

The State Supreme Court has decided the case of the City of Findlay against the Logan Natural Gas Company, affirming the judgment of the Appellate Court of Lancaster, Ohio, while upholding the right of the city council to give the company the privilege to raise its rates.

The case was decided against the gas company, and when it was taken to the Appellate Court two of the judges—Hughes and Kincaid—held against the Common Pleas Court and Judge Crow for the lower court's decision. The gas company wins.

Kansas City Gas Co. Elects New Officers

At a meeting of the directors of the Kansas City Gas Company active control and operation of the company were transferred from the old to the new corporation and new officers were chosen. George T. Nicholson was elected temporary president, succeeding E. L. Brundret. A staff of accountants and officers from the United Gas Improvement Company, of Philadelphia, has been working for some time on the technical details necessary for the transfer of the company to the organization of local financial men who have purchased the Kansas City Gas Company.

The company is taken over entirely free of all floating debts, and part of the securities authorized by the Public Service Commission has been issued at par.

Brooklyn Union Employees to Hold Dance

The Brooklyn Union Gas Company Employees' Association, Street Department, will hold its first ball Thursday evening, April 8, at Perry's Park Inn, Coney Island Avenue and Park Circle. Professor John J. Nolan will furnish the music. The officers and the committee in charge have done everything to make this affair a great success, and it is expected the hall will be well filled by the members and their friends.

This association has only been organized since last September, but has shown wonderful progress, having more than two hundred names on its roll and is in a flourishing financial condition.

The following are the officers: David Mahoney, president; Peter J. McDermott, vice-president; James Leonard, treasurer; James A. Kenny, secretary; William Tinnelly, financial secretary, and William Nolan, sergeant-at-arms.

Providence Company Seeks New Charter

An act introduced in the Rhode Island House of Representatives by Representative Mitchell, of Providence, provides that permission be given to the Providence Gas Company to acquire additional corporations of a like nature so that a consolidation of public utility gas corporations may be established in the State of Rhode Island.

President Manchester, of the gas company, says that the amendment to the charter of the company is asked for so that the concern may enjoy privileges granted by other corporations of acquiring property if the opportunity for so doing arises.

It is expected that at the annual meeting of the corporation the amended charter will be submitted to the stockholders and that by-laws will be adopted for the future government of the corporation.

Gas Supply Is Assured by Opening of New Wells

Adequate supply of gas is assured Okmulgee, Okla., by the bringing in of the 30,000,000-ft. gas well in 12-13-10, twelve miles west of Okmulgee in Okfuskee County by the Lyons Petroleum Company, the Iowa Oil Company and Wangeriene. The Producers and Manufacturers Gas Company has contracted for the production from this mammouth well and is laying a 6-in. main to connect up the well with its lines. The gas being produced by the Lyons well is a dry gas of excellent quality.

The big well drilled in by the Central National Oil Company in 26-12-11 has opened up a new district and which promises interesting developments. Altogether 86,000,000 ft. of gas was added to the daily production of the Okmulgee field last week.

Gas Plant to Close

The Public Service Commission has authorized the Hydro Electric Light & Power Company, of Connersville, Ind., to discontinue its artificial gas service at Connersville, at midnight, March 31, 1920. The company's plant recently broke down.

Poison Gas as Disinfectant

The French are finding peace time uses for their surplus stocks of war materials, a very interesting development being reported from Paris. An outbreak of typhus among refugees in the French capital drew attention to the clothing with which they had been provided. It was suspected that this clothing, which in its day had other users, had not been properly cleaned, in fact that it still harbored vermin carriers of the deadly typhus. Acting on the suspicion resulted in the outbreak being checked.

It was the Pasteur Institute which conducted one of the experiments. This consisted in giving clothing, hair brushes, and combs a bath of one of the most powerful of the asphyxiating gases used in the war; and mattresses and blankets were also treated. Complete disinfection of the several articles resulted, and the vermin were exterminated as well.

The experience is not only interesting as showing that the surplus war material is being put to beneficial use, but it gives some light upon what must have been endured by human beings who were gassed, and who were not killed outright.

Indiana Company Granted Increased Rates

The Interstate Public Service Company of Seymour, Ind., has been granted a gas rate increase of 30 cents a 1,000 cu. ft., and will become effective in Seymour April 1, according to an order issued by the Indiana Public Service Commission. The increase is authorized provided "service is brought up to an adequate standard by such date."

The net schedule under the new order is $1.30 for the first 5,000 ft.; next 5,000, $1.20; next 15,000, $1.10; next 25,000, $1 and all over 50,000, 90 cents.

Gas Company to Move to New Quarters

The People's Gas Light Company, Manchester, N. H., will move from its present quarters, 39 Hanover Street, to a new office at 47-51 Manchester Street, and the present location will be occupied by a specialty shop. The change becomes effective April 1.

The office will occupy two stores. The gas company office on Hanover Street has been occupied by the company for the past twenty years.

Builders to Interest Themselves in Kings County Lighting Co. Rates

An examination of the territory served by the Kings County Lighting Company, which announced a week ago that it would be unable to serve additional consumers under the eighty cent rate received for gas, shows that there are more than 400 to 500 houses now in the course of construction, which will be completed during the coming month. The section affected is the thirtieth ward, which embraces Bay Ridge, Bath Beach, Bensonhurst, Borough Park and Fort Hamilton, and at the present time has a population of approximately one quarter million. Plans filed with the building department indicate a building program in this territory that is the most extensive in the history of the section and call for everything from apartments to mansions costing $50,000 to $75,000.

Ralph Elsman, vice-president and general manager of the company, in an interview after explaining the position taken by his company, stated that it had been his plan to carry on an extensive campaign to induce builders from all sections of Greater New York to concentrate their efforts in the community served by this company.

"We have many acres of land that are available for immediate improvement," said Mr. Elsman, "and until the present precarious situation arose it had been the plan of my company to get all the builders possible working in our territory so that the housing shortage might be relieved.

"The vacant property is in all portions of the territory served by my company, and because of the nature of the land should be extremely attractive to builders. Property in our territory is not held at an inflated value, but on the contrary is, I believe, the best investment in and around New York City.

"When the condition arose that necessitated the action taken by my company, I at once got in touch with all the builders and real estate operators explaining the situation, and the response which I have received from them seems to indicate that the opinion of the majority is to help my company so far as they can in order that building programs may not be interrupted.

"Many people believe that I was extremely radical in taking the stand that I did," continued Mr. Elsman, "but I looked at it from every standpoint, and it came only after I had been sounding a warning for the past year as to what would be necessary if the community my company serves was to keep abreast with all other sections. The step was not taken thoughtlessly, but in my opinion a crisis had been reached in the affairs of the company which would not allow me to continue to have builders investing their money in new houses which I would not be able to supply. I felt that it was my duty and I am still firmly convinced that my stand was justified, to protect the present consumers of my company. During the summer time when building is at its height, it might be possible for my company to add consumers and take care of them, but when the cold months come along we are not in a position to divide our supply among those who need it most badly, but we are unable to control the demand of any one consumer so that the cold weather demand would simply mean that we would be unable to supply anybody and perhaps cause a heavy loss of life. That was a responsibility that I did not care to assume and that has been the basis of my action.

"Perhaps the people do not understand just how officials of public utility companies feel regarding their positions. It is my belief that we public utility operators are as much public officials and have as great a duty to the community as any who are elected to office in municipal, State or Federal Government. We are as much the peoples' representatives as they are. We are as much concerned in seeing that the people are given justice as any duly elected official. But we have an advantage over elected officials inasmuch as we do not have to look out for our political futures and at no time do we have to so to speak 'make a grandstand play to the voters.' On the contrary, if we are to prosper and to give real service to be of aid in developing a community we must keep our eyes on that proposition which will work for the greater good of all concerned so it can be clearly seen that our progressive public utility company must be operated by officials who are true to their trust, and it was with this thought in mind that I took the action that I did."

Mr. Elsman pointed out that he had pledged himself on several occasions in speeches before civic organizations to reduce the price of gas in his territory as soon as the cost of labor and material had decreased, but he explained that in order to do this he must first bring his company over the present stormy period.

During the week which has elapsed since Mr. Elsman made his first announcement, several committees of builders have made and have taken up the question of finding some relief for the gas company in order that they may resume their building operations. The consensus of opinion among builders is that housing for fully 4,000 to 5,000 families can be provided if the situation so far as the gas company is concerned is relieved at once.

Midway Company Has Prosperous Year

Ferdinand Reis, Jr., president of the Midway Gas Company, Los Angeles, Cal., reported to stockholders and directors of that company at their annual meetings, that the year just ended had been a prosperous one. No changes were made in the list of officers nor the directorate. S. Waldo Coleman, director of the company, who was made a vice-president during the year, was re-elected.

Mr. Reis reported to the stockholders that the company has before the Railroad Commission plans for an increase of gas wholesaled by the company at Los Angeles. If approved, the company will lay additional mains from Glendale.

Supreme Court Upholds Right of State to Fix Rates

Decrees of the New York Supreme Court upholding the State's right to fix rates for the sale of natural gas brought in from other States were upheld by the Supreme Court. State Public Service Commission orders denying the Pennsylvania Gas Company, Warren, Penn., permission to increase its rates in Jamestown, N. Y., were sustained.

Gas Economy Urged

Denial of the use of natural gas to industries, gradual increase in rates to domestic consumers and an intensive educational campaign to curtail the enormous waste in homes were the chief measures proposed by the members of the conservation committee appointed recently by Secretary Lane.

Supreme Court Ruling Ends Readiness-to-Serve Charge

The Ohio Supreme Court has handed down a decision in which the Ohio Public Utilities Commission is reversed.

The ruling is regarded to end definitely the practice of imposing a "readiness-to-serve" charge, in addition to all other charges, for consumption of natural gas. The amount taken by the charge is small to the individual consumer, but the aggregate in a city is large.

This reversal was announced in a case appealed from Ashtabula, Ohio, the gas company itself appealing on the ground that the allowance granted to it by the utilities commission was not large enough. The decision is that the rate is compensatory, but the extra charge, established by the commission, is abrogated. The controversy has been in progress since 1914, when, the original franchise expiring, the company refused to accept a 30-cent net rate.

Contending for a 36-cent rate the company applied to the commission, with the result of the establishment of a 34-cent rate with the extra charge, now abrogated.

City Offers Gas Company Rate Increase Under Special Contract

City officials of Pueblo, Col., have granted the Pueblo Gas & Fuel Company an increase in rates for two years under a special two-year contract, and then at the end of the two-year period to again take the rate question up for consideration.

At the same time officials of the city claim that the gas company should return direct to consumers of gas the amount collected from them, equal to the difference between the rates named in the franchise and the increased rate authorized by the utilities commission which the supreme court has decided the commission had no authority to make that authority being vested entirely with officials in all special charter cities. This, it is understood, the company is willing to consider doing under certain conditions, viz., that the city will cancel its present franchise and grant it a new franchise for a long period of years at rates, the minimum of which shall be the rates now in effect and as named by the public utilities commission, and with provisions for additional increases in rates from time to time during the life of the proposed new franchise.

Thus with the city offering the company an increase in rates over those named in their franchise for a two-year period, subject to reconsideration at the end of that period, and with the company asking that its present franchise be cancelled altogether and a new franchise with the existing rates as the minimum and providing for further increases in rates, there is a wide difference, and upon the merits of the position of each party to the controversy there will, of course, be differences of opinion. The point the city officials wish made clear is that they are entirely willing to make a special two-year contract under the terms of which the gas company would be given a fair increase over the rates named in their present franchise and to have the contract subject to revision and consideration at the end of the two-year period.

Worcester Gas Rate Stays at $1.30

The Public Utilities Department has rescinded the order placing the price of gas in Worcester at $1.10 after March 1 and the present rate of $1.30 will remain in effect. The rescinded order also included the provision that the Worcester Gas Light Company set aside $20,000 of its earnings to replace funds taken from the surplus in the past for the payment of dividends.

The commission states in its decision that with the present high cost of labor and materials, and the losses involved by the recent strikes the company cannot be expected to reduce the price of gas at this time.

Oklahoma Gas Notes Sold

Bonbright & Co. and H. M. Byllesby & Co., have purchased an issue of $3,500,000 of Oklahoma Gas & Electric Company one year 7 per cent secured gold notes. The proceeds of the issue and cash in the company's treasury will be used to retire the $3,650,000 of one year notes maturing on April 1.

The notes are a direct obligation of the company and are secured by $4,275,000 general mortgage 6 per cent bonds, and will be offered to the public at 99¼ and interest to yield 7¾ per cent.

Norwood Company Granted Increased Rates

The Department of Public Utilities has authorized the Norwood (Mass.) Gas Company to charge $2.60 per 1,000 cu. ft. for gas, this being an advance over the old rate. These rates were fixed for lesser amounts of the illuminant. For anything under 100 ft., 60 cents; for 100 ft., 95 cents; 200, $1.15; 300, $1.35; 400, $1.55; 500, $1.75; 600, $1.95; 700, $2.15; 800, $2.80, and 900, $2.45.

Personal Notes

U. G. KIMBALL, of Baraboo, Wis., has been appointed superintendent of the Wisconsin Power, Light & Heat Company. He succeeds G. H. Blakesley.

J. R. INGALLS, of Keokuk, Iowa, has been appointed superintendent of the Haverhill (Mass.) Gas Light Company. Mr. Ingalls will assume charge immediately.

G. H. BLAKESLEY, who has been superintendent of the Wisconsin Power, Light & Heat Company at Baraboo, Wis., for three years, has left to take charge of larger power installations in the Janesville district.

FRANK M. LOWRY, fifty-eight years old, for seven years vice-president of the Dominion Natural Gas Company, Buffalo, N. Y., died suddenly on March 18. He is said to be one of the pioneers in the oil and gas industry in this country, and at the age of eighteen was a driller in the Bradford, Pa., fields at the time the first wells were sunk. For a time he was with the Standard Oil Company, of Pennsylvania, joining later the Tri-State Oil & Gas Company. In 1905 he helped organize the Dominion company, coming to the Buffalo office in 1913.

TAKO OIL, GAS, MINERAL & REFINING COMPANY, capital stock, $150,000, for drilling oil wells, purchasing real estate, selling leases on land and mining. Incorporators, Frank H. Tyron, Herbert P. Byrne, Joseph C. Ackerman, Ray P. Scranton and George O. Sample.

Construction Notes

$3,000,000 Coal Gas Plant in Washington, D. C., Is Being Planned

The Washington Gas Light Company, Washington, D. C., is considering plans for the erection of a new $3,000,000 coal gas plant on Analostan Island, which property was acquired by the corporation some years ago.

Conferences of officials of the company with engineers from various sections of the country have been held daily for some time, with a view of ascertaining the most desirable coal gas plant, while the manner of financing the construction has also been given much consideration.

President Reeside is authority for the statement that the company hopes to have all the problems connected with the changes from an oil to a coal gas production solved during the next few weeks, and the plant in operation during the coming summer.

He says that there are serious problems. The present plants of the company are fitted exclusively for making oil gas, and include a gas washing outfit which has been recently installed.

Advances in price and what experts term the utterly inadequate production of oil for the needs of the nation make such a change in the matter of making gas absolutely necessary, gas officials say, as the oil that formerly cost the company 7½ cents a gallon is now selling at 12¼ cents a gallon, and hard to get at that price.

The Washington Gas Light Company has a contract for oil at the low rate of 7½ cents a gallon that will expire with the month of May. As the company uses 17,000,000 gallons of oil a year, the increase cost of oil makes its use prohibitive, save in an emergency.

The company will retain its present plants to help out in the rush months when capacity production is required. A bridge will be built from Rosslyn to Analostan Island for freighting purposes, and the gas mains between the city and the island plant will lie at the bottom of the river.

Washtenaw Gas Company Erecting New Water Gas Plant

The Washtenaw Gas Company, of Ann Arbor, Mich., has awarded contract to the Gas Machinery Company, Cleveland, Ohio, for a complete water gas plant to be used as an adjunct with the coal gas plant which the gas company is now operating.

The equipment will include one 8-in. water gas set with blower, oil pumps and liquor circulating system, condenser, exhauster, P. & A. tar extractor, tar washer, two 20-in. diameter by 12-in. high duplex steel purifiers, Thomas electric meter, yard piping and oil storage tank.

The gas company will install a new building for the generating apparatus and machinery, and provision will be made for a future duplicate equipment.

The large registration of students in the University of Michigan has greatly increased the sales of the Washtenaw Gas Company, and the above equipment will enable the gas company to continue supplying efficient service that has been given in the past.

Danville Gas Co. to Make $12,000 Addition to Its Plant

The Danville (Ky.) Gas Company is contemplating a big addition to its plant. Twelve thousand dollars worth of new machinery for the plant is now on the road and expected to reach Danville any day. When this is installed the troubles of the local plant will be passed for years to come.

Fire Causes $5,000 Damages at Anderson Gas Plant

A $5,000 fire loss was sustained when the gas plant of the Central Indiana Gas Company, Anderson, Ind., was damaged by fire. The generators were down for several hours and manufacturing plants were taken off the lines to save gas for domestic consumers. The plant has resumed operation.

Plan New Building

The Pacific Gas & Electric Company will erect a modern office building in Vallejo, Cal. Construction is to start at an early date.

Coast Valleys Co. to Make $40,000 Improvements

The Coast Valleys Gas & Electric Company, Monterey, Cal., has closed a contract with the Stacey Bros. Construction Company for the purchase of a 100,000 ft. steel gas holder, to be installed at the Monterey plant. This will insure an adequate supply of gas to the customers of the company in Monterey and Pacific Grove even at times of breakdown of any of the units in the company's generating plant. The cost to the company of purchase and erection of this holder will be approximately $40,000 and is solely for the improvement of service, which will not be offset to any material extent in the way of economy of operation or increased revenue.

Explosion in Monterey Gas Plant

A terriffic explosion occurred in the gas plant of the Coast Valleys Gas & Electric Company at Monterey, Cal., caused by the blowing out of the head of one of the big gas holders.

The battery of gas holders lie horizontally on a concrete foundation, and are under a heavy pressure. They are 6 ft. in diameter by 30 ft. in length. The head of one of these blew out.

The recoil shoved the cylinder back 30 ft. and blew the cap through the roof of the building up into the air, where, after circling about, it landed on a nearby Japanese store.

Pieces of wreckage were hurled in all directions. Portions of the building were wrecked, but the machinery was not seriously damaged, and service was restored in a short time.

City Will Force Sale of Gas Properties

The city council of New Orleans, La., will force the gas company to sell its properties.

The action of the city council follows the refusal of the gas company to accept the offer of the city of $5,250,000 for the gas properties.

The purchase by the city of the gas company properties will be the first considerable step by the city towards bringing natural gas to New Orleans, which will mean large reduction in the price of gas to the consumer.

City Attorney Disapproves Three-Way Rate

Ray Bond, city attorney for Joplin, Mo., issued a statement against the proposed change in the method of charging for gas which the Joplin Gas Company is trying to establish. Mr. Bond's explanation of the three-way rate is as follows:

"In my opinion the proposed three-part rate or method of charging for gas, which is contained in the application recently filed before the public service commission by the Joplin Gas Company as one of three alternative rates it is asking the commission to establish, would be absolutely unjust to the average gas consumer, regardless of what the unit prices for the three charges might be.

"The three-part rate, which has heretofore been applied in charging for electrical service, has never been used or attempted to be used, as a basis for charging for natural gas and no one ever thought of so using it until Henry L. Doherty proposed it something over a year ago. The three-part rate gets its name from the fact that there are three separate charges made to the consumer in arriving at his monthly gas bill.

"In the rates asked for by the Joplin Gas Company these three charges are as follows: First, a service charge of $12 a year a customer; second, an annual demand charge of 32 cents a 1,000 cu. ft. of maximum hourly demand; third, a charge of 35 cents a 1,000 cu. ft. for all gas annually consumed by the customer, all three of these charges to be paid monthly.

"The first and third charges do not require explanation, the first simply meaning that each gas consumer would be required to pay $1 each month regardless of how much or how little gas he used, and in addition to the charges for gas consumed; the third charge means that, in addition to the other two charges, the consumer would have to pay 35 cents a 1,000 cu. ft. for all gas actually used.

"The joker in the three-part rate comes in the second charge, called the demand charge. This demand charge means that each consumer would have to estimate a year in advance the largest amount of gas he would want to use in any one hour during the year, and would then have to pay 32 cents a year for each 1,000 cu. ft. of gas that he estimated he would use during the hour when he would have his largest demand or consumption of gas. After the customer had made his estimate as to the largest number of feet of gas he would consume in any one hour in the year, the gas company would place an appliance next to the gas meter which would be so regulated that only the amount estimated could go into the consumer's pipes in an hour. That is to say, if a customer placed his maximum hourly demand at 100 cu. ft. this appliance would so control the flow of gas that it would be divided among the different appliances that were open in the customer's house, and only flow at a rate of 100 cu. ft. an hour, so that if the consumer tried to burn a sufficient number of appliances at one time to require gas at a higher rate of flow than 100 ft. an hour, the gas permitted to come into the pipes by the appliance above mentioned would be divided among the different appliances which were used; and as the consumer lighted other burners or jets the amount of gas coming to each burner would be lessened until finally none of them would have enough gas to make a respectable flame.

"The least demand which a customer could take under this proposed rate would be fifty feet an hour, which would mean a demand charge of $16 a year, or $1.33 a month, so that the fixed charge which the smallest consumer of gas would have to pay each month, before paying for any gas actually used and regardless of whether he used any gas, would be $2.33.

Ohio Cities Gas Co. Plans Issue

The Ohio Cities Gas Company will issue $10,000,000 8 per cent preferred stock convertible into common stock at $50 per share. This stock will be offered exclusively to the stockholders of the Ohio Cities Gas Company and the Oklahoma Producing & Refining Corporation.

The Ohio Cities Gas Company has made considerable addition to its properties in recent months in the purchase of various oil producing properties. Chief among these is the purchase of the dominating interest in the Oklahoma Producing & Refining Company, negotiations for which were closed late in 1919.

Ohio Cities Gas is now operating six of its refineries with a capacity of 25,000 barrels per day.

Southern Counties Company to Have New Supply of Gas

The new Midway petroleum gusher in the Placentia field is of especial interest to the consumers of the Southern Counties Gas Company of California, as bringing in of this well will make available an additional supply of gas for the Southern Counties.

When the well was originally brought in a tremendous volume of gas, estimated at from fifteen to twenty million cubic feet, came out of the ground, but within the last few days the well has commenced to produce oil and the flow of gas has settled down to approximately four million cubic feet per day, with a possible fluctuation downward rather than upward.

The necessary steps have been taken to collect and conserve all of the natural gas produced by the well, and it is believed that the gas from this well will soon be flowing into the mains of the Southern Counties Gas Company. If the well continues to produce steadily four million cubic feet per day, as indications point that it may, the industrial consumers of the Southern Counties Gas Company in Orange County, who were recently cut off because of the natural gas shortage, may be furnished with gas again.

The Southern Counties Gas Company is doing everything within its power to augment its present supply of natural gas, and hopes that the development in the Placentia district will result in the production of a supply of gas sufficient to take care of the requirements of all its lines in the southern counties.

Famine in Gas Ranges

The gas range trade reports a complex situation, with abnormal demand and subnormal supplies. Short working hours and inability to obtain sheet steel are given as the chief reasons for short production. The demand this year is said to be beyond all expectations.

One manufacturer with local connections has orders for 40,000 more gas stoves than he can fill by midsummer. A Philadelphia jobber in trying to place an order for early delivery found fifteen manufacturers sold up for the season. Small fractional allotments on orders are the rule with all manufacturers.

Gas Company and City Compromise on 40-Cent Rate

A compromsie of a flat rate of 40 cents per 1,000 cu. ft. with a prompt payment discount of two cents was brought about in the gas controversy between the Wheeling Chamber of Commerce, together with several of the large industrial concerns of the community and the Natural Gas Company of Wheeling, W. Va.

Last fall the Natural Gas Company of West Virginia filed its petition with the Public Service Commission of West Virgina at Charleston, for permission to increase the present rates, asking that the prices for natural gas be advanced 42 cents per 1,000 cu. ft. for the first 5,000 cu. ft. of gas consumed; 47 cents for the second 5,000, and 52 cents per 1,000 cu. ft. for all the gas consumed in excess of 10,000 cu. ft. These charges, however, were to be subject to a discount of two cents per 1,000 cu. ft., provided that the gas bills were paid before the twelfth day of each month following the month for which the gas was furnished.

A compromise has been finally reached at a general meeting by which the Chamber of Commerce and the gas company agreed that a flat price or rate of 40 cents per 1,000 cu. ft. of gas, with a discount of two cents per 1,000 cu. ft. upon gas bills paid before the twelfth of the month, should be charged and paid for the gas supplied in the future.

Stock Authorized

The Department of Public Utilities has authorized the Charlestown Gas & Electric Company, of Boston, Mass., to issue 2,000 shares of additional capital stock at a price of $82.50 a share for the purpose of meeting indebtedness incurred in making improvements in its plant. The par value of the shares will be $50.

Gas Ordinance Passed at Lorain

The Lorain, Ohio, City Council has reversed itself and granted the Citizens Gas Company the demanded graded scale of rates that they originally asked for. The city council at first refused the raise and established a straight rate for forty cents, instead of the graded scale running from 45 to 60 cents.

Prevention of Gas Wastage Discussed

Gas wastage that might be prevented was the chief topic of discussion before members of the Oklahoma Utilities Association at a meeting in Oklahoma City, Okla. Samuel S. Wyer, consulting engineer, representing the United States Bureau of Mines, believed that a very large per cent of the gas was wasted in consumption. He advocated simple changes in cooking and heating stoves as one means of conservation.

How to use gas to conserve it and at the same time get the full value of it should be the object of educational campaigns over the country, it was suggested. In this Mr. Wyer said the Government may give aid. By improved methods in the construction of burners there is reason to believe that a large amount of gas will be saved from waste. He pointed out the fact that other States once abundant in gas supply now were practically without it, and that with a reasonable and sane conservation system in Oklahoma the supply here would last for twenty-five years yet.

FOR SALE. Toluol Plant Equipment

One Koppers Crude Still, 9 ft. diam. by 13 ft. 9 in. long, vertical steel shell.
One Rectifying, 3 ft. 6 in. diam. by 15 ft. 10½ in. high, cast iron column, twelve intermediate sections, cap and bottom sections.
One Dephlegmator, 4 ft. diam. by 6 ft. 6 in. long, steel shell, cast iron heads.

One Koppers Light Oil still, 5 ft. diam. by 25 ft. 3 in. high, cast iron column, thirteen intermediate sections, cap and bottom sections.
One Heat Exchanger, vapor to oil, 4 ft. diam. by 6 ft. 6 in. long.

Two Superheaters, 3 ft. diam. by 20 ft. 9 in. high, lap weld tubes, steel shell.
Three Worthington Horizontal Duplex steam pumps, 7½ by 7¼ by 10.
One Light Oil separator, 3 ft. diam. by 15 ft. 8 in., vertical steel shell.
Two Enriching Oil Heaters, 2 ft. 6 in. diam. by 6 ft. 8 in. high, lap weld tubes.
One Oil to Oil heat exchanger, 11 ft. by 20 ft. by 4 ft. 6 in. deep, rectangular.
One 4 in. Empire oil meter, 1⅝ in. Empire oil meter.
One 24 in. Venturi Gas meter and instrument, 8 in. throat.
One No. 301 Junkers calorimeter, complete.
One Light oil washer, 11 ft. 6 in. diam. by 100 ft. high, 7/16 in. plate.
Two 30 in. Iron Body gate valves, rising steam.

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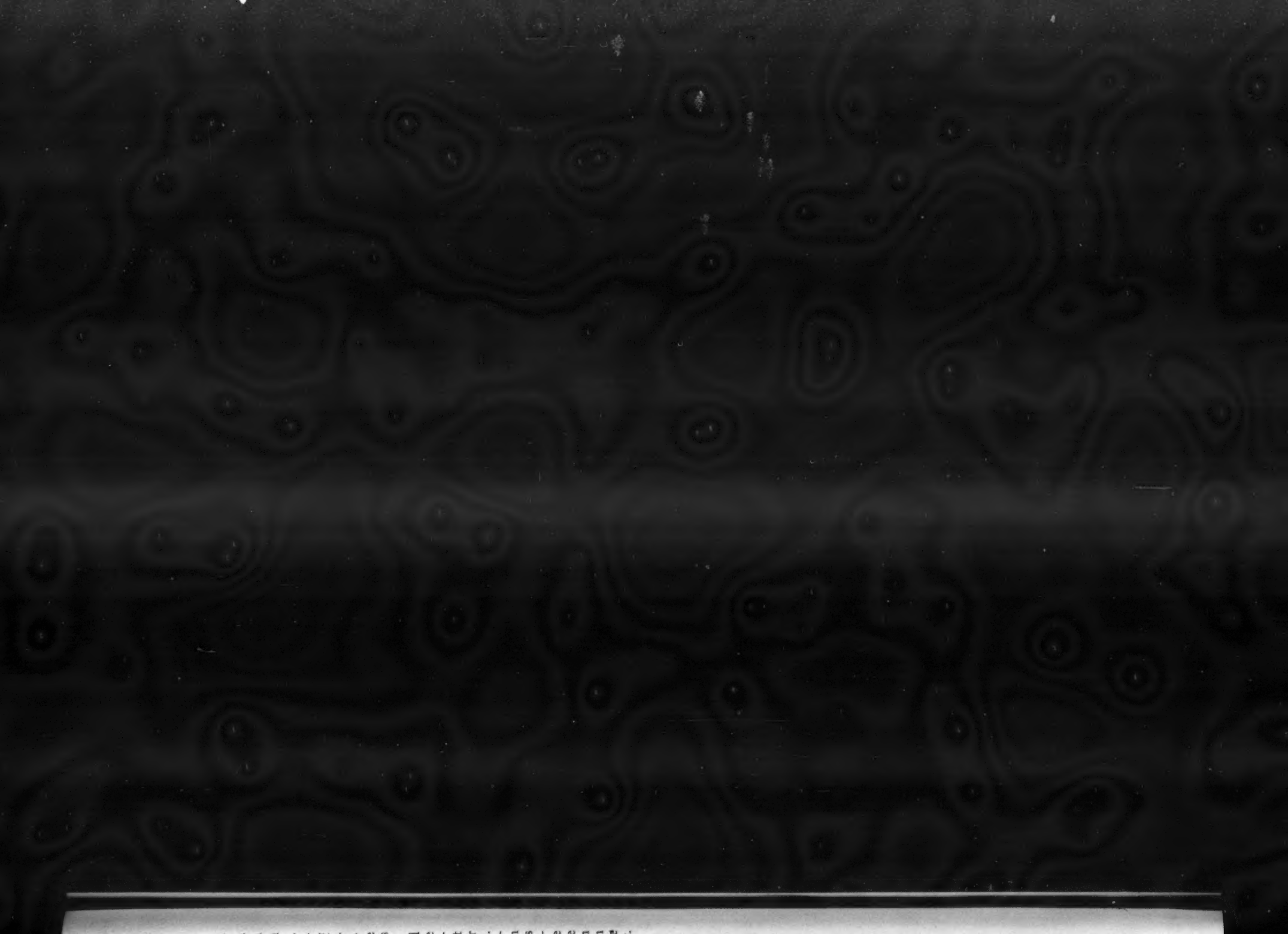
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